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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant : Alexander MAASS  
Serial No. : 10/510,398  
Filed : October 5, 2004  
For : METHOD AND DEVICE FOR DRIVER INFORMATION  
AND FOR A REACTION WHEN LEAVING THE TRAFFIC  
LANE  
Examiner : Chuong P. NGUYEN  
Art Unit : 3663  
Conf. No. : 3131

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Jong H. Lee (Reg. No. 36,197)

**APPELLANT'S REPLY BRIEF**  
**UNDER 37 C.F.R. § 41.41**

S I R :

In response to the Examiner's Answer mailed on December 12, 2007, Applicant submits this Reply Brief in support of his appeal from the Final Office Action dated December 7, 2006 and Advisory Office Action dated June 5, 2007, in which claims 15, 16, 18, 19 and 21-24 of the above-identified application were finally rejected.

## ARGUMENTS

### **A. REJECTIONS BASED ON 35 U.S.C. § 112, FIRST PARAGRAPH**

Claims 15, 16, 18, 19 and 21-24 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement and the written description requirement. In the Examiner's Answer, the Examiner has indicated that these rejections are withdrawn. Accordingly, the rejections under 35 U.S.C. § 112, first paragraph, are no longer pending for review on appeal.

### **B. REJECTION OF CLAIMS 15, 16, 18 AND 21 UNDER § 102(b)**

Claims 15, 16, 18 and 21 were rejected under 35 U.S.C. § 102(b) as being anticipated by Breed (WO 00/54008). Applicant submits that this rejection should be reversed for at least the following reasons.

To anticipate a claim under § 102(b), a single prior art reference must identically disclose each and every claim element. See Lindeman Maschinenfabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). If any claimed element is absent from a prior art reference, it cannot anticipate the claim. See Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997). Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claim invention, arranged exactly as in the claim. Lindeman, 703 F.2d 1458 (Emphasis added). Additionally, not only must each of the claim limitations be identically disclosed, an anticipatory reference must also enable a person having ordinary skill in the art to practice the claimed invention, namely the inventions of the rejected claims, as discussed above. See Akzo, N.V. v. U.S.I.T.C., 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986). To the extent that the Examiner may be relying on the doctrine of inherent disclosure for the anticipation rejection, the Examiner must provide a "basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art." (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Independent claim 15 recites, in relevant parts, "**determining an anticipated track of a vehicle, taking into account a future, anticipated path correction by the driver;**

deriving at least one of the driver information and the vehicle intervention from the at least one boundary of the traffic lane and the anticipated track of the vehicle; and at least one of: a) providing the driver information when the vehicle one of leaves the traffic lane and threatens to leave the traffic lane; and b) performing the vehicle intervention when the vehicle one of leaves the traffic lane and threatens to leave the traffic lane.”

It is a fundamental rule of claim interpretation that the claims should be given “the broadest reasonable interpretation” that is consistent with the specification and the interpretation that those skilled in the art would reach. (See M.P.E.P. 2111, citing In re Hyatt , 211 F.3d 1367 (Fed. Cir. 2000), and In re Cortright, 165 F.3d 1353 (Fed. Cir. 1999)). As exhaustively explained in the Specification, the present invention involves **determining an anticipated future track of the vehicle (i.e., at least one trajectory line or path of the vehicle, e.g., defined by “track of the left and/or right vehicle edge”; Original Specification, p. 6, l. 31 – p. 7, l. 3; Fig. 3b, line 202), which anticipated future track (trajectory line or path) takes into account the independent path correction that is expected from the driver (e.g., steering angle which the driver normally uses to correct his track) (p. 4, l. 28-31; p. 7, l. 29-32).** In addition, any dictionary definition of the term “track” clearly supports the interpretation provided in the present Specification, i.e., an identifiable trajectory line or path. Furthermore, the Specification clearly indicates that “path correction of the driver” refers to a reactive steering, i.e., the “steering angle which the driver normally uses to correct his track” in the case the vehicle would go astray, e.g., out of the lane, without the path correction by the driver. Therefore, according to the present claimed invention, the future track (trajectory line or path) of the vehicle is determined based on at least **two components**: a) the preliminary future path of the vehicle calculated based on, e.g., the current vehicle speed, the current steering angle, or the transverse acceleration; and b) the **anticipated path correction that is expected from the driver (steering angle which the driver normally uses to correct his track)**. In this manner, by considering the anticipated path correction (steering angle which the driver normally uses to correct his track), the future track of the vehicle is ascertained more accurately, and in turn a more accurate determination is made whether the vehicle will actually go out of the lane boundaries. .

In the Examiner’s Answer, the Examiner contends that Breed discloses “determining an anticipated track (i.e., exit a congested highway; attempt to run off the

roadway at high speed) of a vehicle taking into account future, anticipated path correction by the driver (i.e., driver control[s] the vehicle to stay within corridor; driver's intent to exit a congested highway) (Fig. 4, "14"; page 4, line 31 – page 5, line 5; page 6, lines 17-25; page 9, lines 4-13; page 31, lines 22-24; page 32, lines 10-19; page 38, lines 6-14)." Applicants note that this asserted interpretation by the Examiner is **a completely new interpretation of the claimed features, which interpretation was never presented prior to the Examiner's Answer**. Accordingly, not only is the Examiner implicitly acknowledging that his prior interpretation of the prior art as applied against the present claimed invention was completely incorrect, but the Examiner should have properly designated this new interpretation as a new ground of rejection. In any case, when the claimed features are given the broadest, **reasonable interpretation** as explained above, there is **absolutely no way that any reasonable interpretation of the disclosure of Breed could even remotely suggest the above-recited claimed features**, as explained in detail below.

With respect to the Examiner's newly asserted interpretation, to the extent the Examiner attempts to link **"driver control[s] the vehicle to stay within corridor"** (which the Examiner asserts as being equivalent to the claimed recitation of "future, anticipated path correction by the driver") with **"attempt to run off the roadway at high speed"** (which the Examiner asserts as being equivalent to the claimed recitation of "determining an anticipated track"), this attempted association doesn't even make any sense, particularly because **"driver control[s] the vehicle to stay within corridor"** and **"attempt to run off the roadway at high speed"** refer to separate, independent and **completely contradictory actions** of the **driver**. The section of Breed cited by the Examiner refers to a situation in which **"the operator falls asleep or for some other reason attempts to run off the roadway at high speed,"** p. 6, l. 21-22, which means the driver either can't (because he is asleep) or won't (because he is "for some other reason deliberately attempting to run off the roadway") control the vehicle to stay within the lane. Accordingly, **"attempt to run off the roadway at high speed"** has absolutely no logical connection with **"driver control[s] the vehicle to stay within corridor,"** and these two statements have nothing to do with **"determining an anticipated track."**

Independent of the above, to the extent to the extent the Examiner attempts to link **"driver's intent to exit a congested highway"** (which the Examiner asserts as being equivalent to the claimed recitation of "future, anticipated path correction by the driver") with

“exit a congested highway” (which the Examiner asserts as being equivalent to the claimed recitation of “determining an anticipated track”), the Examiner appears to be relying on the disclosure on p. 4, l. 39 – p. 5, l. 2, of Breed, which section states that the “vehicle operator . . . could operate his turn signal that would inform the control system of this desire.” In this regard, it is clear that the Examiner is trying to stretch the definition of the claimed feature way beyond the broadest reasonable interpretation of the claim. The most glaring problem with the Examiner’s interpretation is that, according to the section of Breed cited by the Examiner, the control system clearly does not ascertain any future track or path, let alone ascertain any future track or path based on the turn signal. In this regard, the discussion in the cited section of p. 4, l. 39 – p. 5, l. 2 of Breed (regarding the turn signal operation to permit the vehicle to exit from the highway) doesn’t have anything to do with path prediction, but merely addresses an exception to the normal operation of the control system, i.e., normally the operator is required to maintain the vehicle within the corridor (see p. 4, l. 32-39), and the operation of the turn signal temporarily suspends this requirement and “permit[s] the vehicle to safely exit from the highway.” To the extent the Examiner is implicitly arguing that the claimed “determining an anticipated track” is satisfied by the control system’s knowledge of the general direction of a future turn, this interpretation is wildly broader than the broadest reasonable interpretation explained above, i.e., “determining an anticipated track” clearly requires ascertaining a trajectory line or path, rather than merely having a sense of general direction of a future turn which clearly does not enable determining the actual trajectory line or path, i.e., is it impossible to determine at what point after the operation of the turn signal the driver will actually turn (e.g., when there are two adjacent exits in the same direction), or what trajectory (e.g., how wide a turn) the driver will take. In addition, to the extent the Examiner may be arguing that “determining a future track” means “effectuating” a future track (by the driver’s turning action), this interpretation is clearly unreasonable based on both the plain reading of the claimed feature and the Applicant’s disclosure (as discussed above, Applicant’s disclosure clearly discloses ascertaining a trajectory line or path).

Independent of the above, to the extent the Examiner is trying to argue that mere indication of a turn signal satisfies the claimed “future, anticipated path correction,” this interpretation is also wildly unreasonable. At best, the operation of the turn signal would merely inform the control system of Breed which direction the driver would like to turn

eventually, but there is no way to anticipate based on the operation of the turn signal the actual trajectory line or path the driver wishes to take, i.e., is it impossible to determine at what point after the operation of the turn signal the driver will actually turn (e.g., when there are two adjacent exits in the same direction), or what trajectory (e.g., how wide a turn) the driver will take. In any case, it is clear that nothing in Breed even remotely suggest ascertaining the future track of the vehicle taking into consideration the turn signal (or any “future, anticipated path correction by the driver”).

For at least this reason, claim 15 and its dependent claims 16, 18 and 21 are not anticipated by Breed. Reversal of the anticipation rejection is respectfully requested.

### C. REJECTION OF CLAIM 19

Claim 19 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Breed in view of Hiwatashi (U.S. Patent No. 6,370,474). Applicant submits that this obviousness rejection should be withdrawn for at least the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). In addition, there must be a reasonable expectation of success. In re Merck & Co., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Furthermore, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). To the extent the Examiner may be relying on the doctrine of inherent disclosure in support of the obviousness rejection, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art.” (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Claim 19 depends on claim 15, and claim 19 further recites that “a left future track of the vehicle and a right future track of the vehicle are determined, and **the left future track and the right future track are compared to left edge markings and right edge markings of the traffic lane,**” which limitations are admitted by the Examiner as missing from Breed. In the “Response to Argument” section of the Reply Brief, the Examiner contends that “[s]ince . . . Breed et al. disclose the future tracks (i.e., exit a congested highway; attempt to run off the roadway) . . . and Hiwatashi teaches . . . determining and comparing the tracks with the edge markings of the vehicle . . . **motivation to combining the art to cure the deficiencies and obtaining the predictable results are within level of one having ordinary skill in the art.**” Applicants submit that the Examiner’s contentions are woefully inadequate to properly support an obviousness rejection, as explained below.

First, to the extent the Examiner cites Hiwatashi for teaching the limitations of claim 19 (the Examiner admits that Breed does not teach the limitations of claim 19), Hiwatashi merely compares the steering wheel orientation with respect to one lane marker, i.e., an object lane marker which is closer to the vehicle, but there is no suggestion of determining the future tracks of both the left and the right sides of the vehicle, let alone any suggestion of comparing both the left future track and the right future track to the respective left and right edge markings. Accordingly, the overall teachings of Breed and Hiwatashi cannot possibly suggest the claimed features of claim 19. For at least this reason, claim 19 is not rendered obvious by the combination of Breed and Hiwatashi.

Second, merely stating what each reference teaches and concluding that “motivation to combining the art to cure the deficiencies and obtaining the predictable results are within level of one having ordinary skill in the art” simply doesn’t meet the level of reasoning stipulated by the Supreme Court, i.e., the Examiner must “identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. See KSR Int’l Co. v. Teleflex, Inc., 82 U.S.P.Q.2d 1385 (2007). In this regard, the Supreme Court further noted that “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” Id., at 1396. The Examiner hasn’t provided any basis to make the determination that the results are predictable, let alone what the ordinary skill level in the art is, so there is simply no basis for the

Examiner's conclusory statement.

Third, the combination of Breed and Hiwatashi fails to suggest all the features of parent claim 15. Breed clearly fails to teach or suggest all of the claimed features of parent claim 15, i.e., Breed fails to teach or suggest “determining an anticipated track of a vehicle, taking into account a future, anticipated path correction by the driver.” In addition, Hiwatashi clearly does not remedy the deficiencies of Breed as applied against parent claim 15 since Hiwatashi has nothing to do with “determining an anticipated track of a vehicle, taking into account a future, anticipated path correction by the driver.” In fact, col. 4, l. 23-53 of Hiwatashi cited by the Examiner merely discloses determining “whether the **steering direction** is departing from or is returning to **the reference position . . .** by investigating how the steering wheel has been turned with respect to an object lane marker which is closer to the vehicle, i.e., investigating whether the steering wheel has been turned in the direction of the object lane marker or in the opposite direction of the object lane marker.” Accordingly, even if one assumes for the sake of argument that there were some motivation for combining the teachings of Breed and Hiwatashi in the manner asserted by the Examiner (which is not conceded by the Applicant), independent claim 15 and its dependent claim 19 are not rendered obvious by the combination of Breed and Hiwatashi.

In view of the foregoing, reversal of the obviousness rejection of claim 19 is requested.

#### **D. REJECTION OF CLAIM 22**

Claim 22 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Breed in view of Jeon (U.S. Patent No. 6,487,501). Applicant submits that this rejection should be withdrawn for at least the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re



Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). In addition, there must be a reasonable expectation of success. In re Merck & Co., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Furthermore, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). To the extent the Examiner may be relying on the doctrine of inherent disclosure in support of the obviousness rejection, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art.” (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Claim 22 depends on claim 15, and claim 22 further recites “**determining a variable representing attentiveness of the driver; and determining a future steering correction by the driver that is used to determine at least one of the track of the vehicle and an extent of a warning of the driver based on the variable.**” Although the Examiner previously contended that Breed does not teach determining a future steering correction by the driver that is used to determine the track of the vehicle, the Examiner now asserts that Breed does teach this claimed feature. For the reasons explained above in connection with parent claim 15, Breed clearly does not teach or suggest **determining a future steering correction** by the driver that is used to determine the track of the vehicle (trajectory path). In addition, to the extent the Examiner contends that Jeon teaches this claimed feature, Applicant notes that the sections of Jeon cited by the Examiner (i.e., Fig. 6, steps S140 and S150; col. 3, l. 7-12; and cols. 5 and 6) clearly do not teach the claimed features; instead, the cited sections clearly disclose an automatic steering correction to prevent lane deviation, and “the driver’s intention” mentioned in connection with steps S140 and S150 refer to the driver’s intention as to whether the automatic steering correction should be maintained. Although col. 6, l. 3 of Jeon recites “driver intent to control steering,” this intent to control has nothing to do with determining a **specific steering correction** that is used to ascertain the **track (trajectory path) of the vehicle**. For at least these reasons, dependent claim 22 is not rendered obvious by Breed and Jeon.

Independent of the above, the combination of Breed and Jeon clearly fails to teach or suggest all of the claimed features of independent claim 15, i.e., Breed fails to teach or suggest “determining an anticipated track of a vehicle, taking into account a future, anticipated

path correction by the driver,” and Jeon clearly does not remedy the deficiencies of Breed as applied against parent claim 15 since Jeon has nothing to do with “determining an anticipated track of a vehicle, taking into account a future, anticipated path correction by the driver.” In fact, the sections of Jeon cited by the Examiner (i.e., col. 3, l. 7-12, and cols. 5 and 6) clearly disclose an automatic steering correction to prevent lane deviation (e.g., “the ECU of an EPS system operates a steering actuator such that the vehicle is controlled to a desired location”), but there is no indication in Jeon regarding “determining an anticipated track of a vehicle, taking into account a future, anticipated path correction by the driver.” Accordingly, even if one assumes for the sake of argument that there were some motivation for combining the teachings of Breed and Jeon in the manner asserted by the Examiner (which is not conceded by the Applicant), independent claim 15 and its dependent claim 22 are not rendered obvious by the combination of Breed and Jeon.

To the extent the Examiner continues to maintain that the statement on p. 31, l. 21-24 of Breed discloses “determining a **variable representing attentiveness** of the driver” and “providing an extent of a warning of the driver based on the variable,” the cited section does not support the Examiner’s contentions. P. 31, l. 22-24 of Breed merely indicate that the “system senses the result of the action of the operator, which could occur for a variety of reasons including old age, drunkenness, heart attacks, drugs as well as falling asleep.” While this statement indicates that the system senses the RESULT of the driver’s action, for which there may be various causes (including various physical causes), but the system clearly does not in any way determine a variable representing the physical causes, and there is absolutely no suggestion of “providing an extent of a warning of the driver based on the variable” that represents the physical cause.

For at least the foregoing reasons, the obviousness rejection of claim 22 should be reversed.

#### **E. REJECTION OF CLAIMS 23 & 24**

Claims 23 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Breed in view of Russell (U.S. Patent No. 6,675,094). Applicant submits that this obviousness rejection should be reversed for at least the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). In addition, there must be a reasonable expectation of success. In re Merck & Co., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Furthermore, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). To the extent the Examiner may be relying on the doctrine of inherent disclosure in support of the obviousness rejection, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art.” (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Claims 23 and 24 ultimately depend on claim 15. The Examiner has not provided any new arguments in the Examiner’s Answer. Accordingly, Applicant requests reversal of the obviousness rejection of claims 23 and 24 for the reasons stated in the Appeal Brief.

**CONCLUSION**

For the foregoing reasons, it is respectfully submitted that the final rejections of claims 15, 16, 18, 19 and 21-24 should be reversed.

Respectfully submitted,

KENYON & KENYON LLP

 (R. NO. 36,197)

Dated: February 11, 2008

By: JONG LEE for Gerard A. Messina  
Gerard A. Messina  
Reg. No. 35,952  
One Broadway  
New York, New York 10004  
(212) 425-7200  
**CUSTOMER NO. 26646**